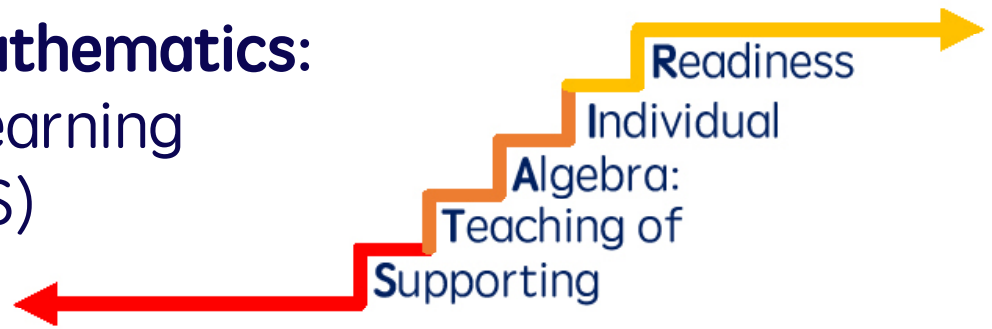


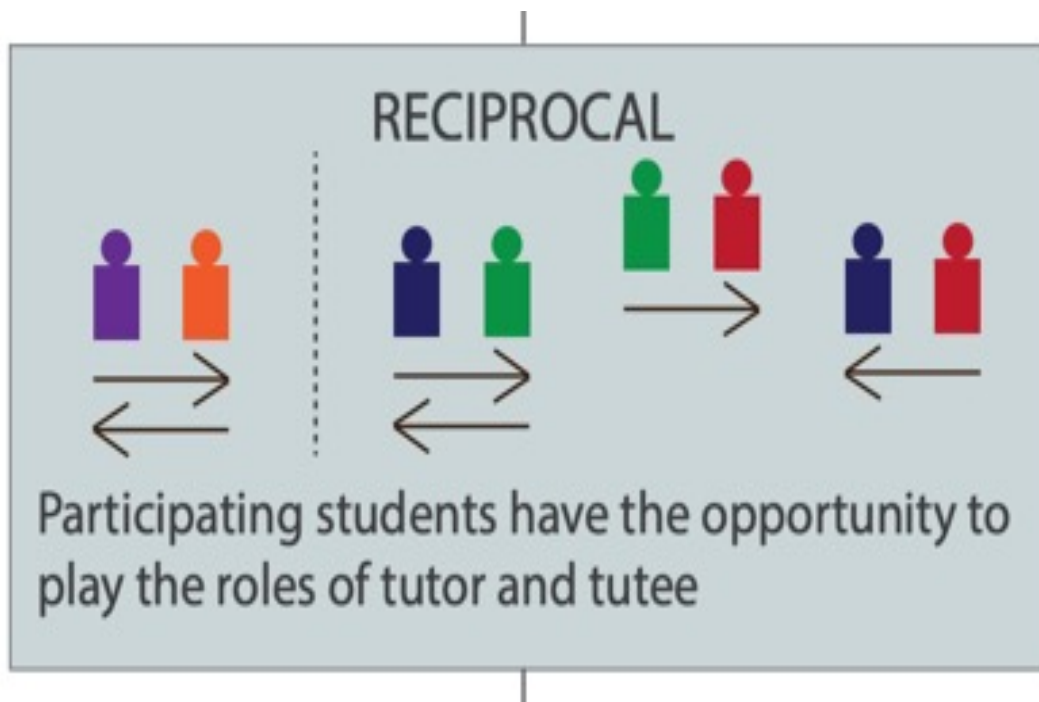
# Resources in Mathematics:

## Peer Assisted Learning Strategies (PALS)



What is PALS?

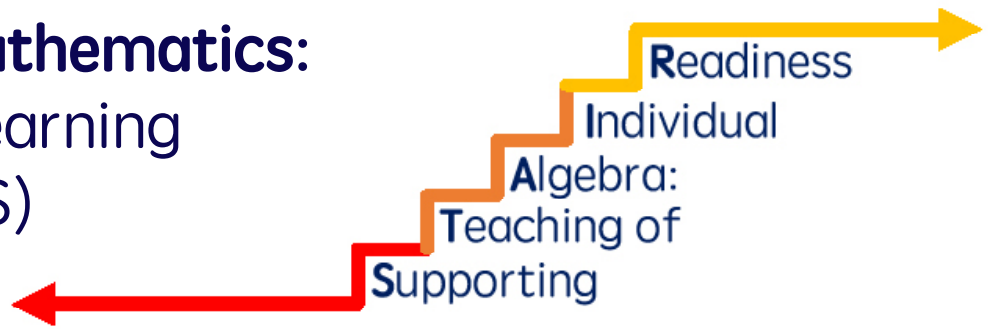
- PALS is a peer-tutoring program in which students work together (usually in pairs) and perform a structured set of activities in reading or math for the purpose of practicing and mastering academic skills and concepts.
- Teachers create student pairs based on individual needs of the students. Teachers are “managers” of the intervention.



### Structured Peer Tutoring Intervention:

- o Two Parts of PALS Math Lessons
- o Minimum of 30 minutes, twice per week
- o One of the students in the pair plays the role of coach, and the other plays the rules of player.

# Resources in Mathematics: Peer Assisted Learning Strategies (PALS)



### Coaching (15-20 minutes)

- Each of the partners work on math problems in a specific area.
- The coach questions the player in order to guide the activity.

### Practice (5-10 minutes)

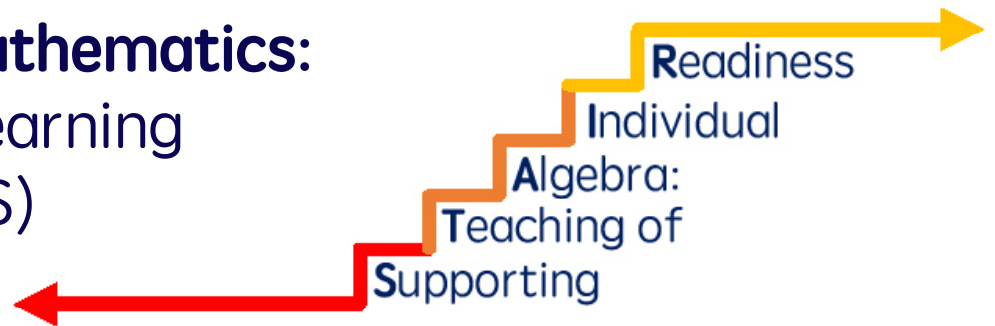
- Students do independent practice worksheet.
- Students exchange papers and score them.
- Students earn points based on cooperation, explanations and accuracy.

## Applied example on adding fraction with like denominators

Coaching Question Sheet	Coaching Sheet																																																																		
<p>A Coaching Question Sheet is only for Coach to check the accuracy of the Player's response on the Coaching Question Sheet.</p>	<p>A Coaching Sheet is shared by the Coach and Player.</p>																																																																		
<div style="border: 1px solid black; padding: 5px;"> <p style="text-align: center; font-weight: bold;">Adding Fractions With Like Denominators Coach's Question Sheet</p> <ol style="list-style-type: none"> <li>1. Read the problem aloud.</li> <li>2. Rewrite the problem, vertically, in the space below the first fraction.</li> <li>3. Do you need to add or subtract the fractions?</li> <li>4. Add the fractions.</li> <li>5. Add the whole numbers if there are whole numbers in the problem.</li> <li>6. Do you need to rename the fraction? If yes, do it. (If you need help, see Renaming Hint below)</li> <li>7. Add renamed fraction to the whole number if there is a whole number.</li> <li>8. Do you need to reduce your fraction to lowest terms? If yes, do it.</li> <li>9. Write you answer in the circle.</li> </ol> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p style="text-align: center; font-weight: bold; font-size: small;">Hint for Renaming When Adding</p> <p style="font-size: x-small;">Is the numerator of the fraction less than, equal to, or greater than the denominator?                      IF LESS THAN, you do <u>not</u> need to rename the fraction.                      IF EQUAL TO, the fraction equals 1.                      EXAMPLE: <math>\frac{3}{3} = 1</math></p> <p style="font-size: x-small;">IF GREATER THAN, divide the numerator by the denominator. The quotient becomes a whole number, the remainder becomes the numerator, and the divisor remains the denominator. This number is your renamed fraction.                      EXAMPLE: <math>\frac{11}{7} = 1 \frac{4}{7}</math></p> </div> </div>	<div style="border: 1px solid black; padding: 5px;"> <p style="text-align: center; font-weight: bold;">Adding Fractions With Like Denominators Coaching Sheet</p> <p style="font-size: small;">Player's Name _____ Date _____ Coach's Name _____</p> <table style="width: 100%; text-align: center;"> <tr> <td><math>\frac{7}{12} + \frac{8}{12} = \square</math></td> <td><math>4\frac{4}{9} - 2\frac{4}{9} = \square</math></td> <td><math>5\frac{2}{8} + 1\frac{2}{8} = \square</math></td> </tr> <tr> <td>_____</td> <td>_____</td> <td>_____</td> </tr> <tr> <td>+</td> <td>+</td> <td>+</td> </tr> <tr> <td>_____</td> <td>_____</td> <td>_____</td> </tr> <tr> <td>+</td> <td>+</td> <td>+</td> </tr> <tr> <td>_____</td> <td>_____</td> <td>_____</td> </tr> <tr> <td><math>\frac{4}{7} + \frac{7}{7} = \square</math></td> <td><math>6\frac{2}{8} + 4\frac{2}{8} = \square</math></td> <td><math>\frac{4}{9} + \frac{2}{9} = \square</math></td> </tr> <tr> <td>_____</td> <td>_____</td> <td>_____</td> </tr> <tr> <td>+</td> <td>+</td> <td>+</td> </tr> <tr> <td>_____</td> <td>_____</td> <td>_____</td> </tr> <tr> <td>+</td> <td>+</td> <td>+</td> </tr> <tr> <td>_____</td> <td>_____</td> <td>_____</td> </tr> <tr> <td><math>9\frac{1}{6} + 2\frac{1}{6} = \square</math></td> <td><math>\frac{3}{10} + \frac{7}{10} = \square</math></td> <td><math>8\frac{2}{7} + 3\frac{2}{7} = \square</math></td> </tr> <tr> <td>_____</td> <td>_____</td> <td>_____</td> </tr> <tr> <td>+</td> <td>+</td> <td>+</td> </tr> <tr> <td>_____</td> <td>_____</td> <td>_____</td> </tr> <tr> <td>+</td> <td>+</td> <td>+</td> </tr> <tr> <td>_____</td> <td>_____</td> <td>_____</td> </tr> <tr> <td><math>\frac{8}{8} + \frac{8}{8} = \square</math></td> <td><math>3\frac{4}{9} + 5\frac{4}{9} = \square</math></td> <td><math>2\frac{4}{10} + 6\frac{4}{10} = \square</math></td> </tr> <tr> <td>_____</td> <td>_____</td> <td>_____</td> </tr> <tr> <td>+</td> <td>+</td> <td>+</td> </tr> <tr> <td>_____</td> <td>_____</td> <td>_____</td> </tr> </table> </div>	$\frac{7}{12} + \frac{8}{12} = \square$	$4\frac{4}{9} - 2\frac{4}{9} = \square$	$5\frac{2}{8} + 1\frac{2}{8} = \square$	_____	_____	_____	+	+	+	_____	_____	_____	+	+	+	_____	_____	_____	$\frac{4}{7} + \frac{7}{7} = \square$	$6\frac{2}{8} + 4\frac{2}{8} = \square$	$\frac{4}{9} + \frac{2}{9} = \square$	_____	_____	_____	+	+	+	_____	_____	_____	+	+	+	_____	_____	_____	$9\frac{1}{6} + 2\frac{1}{6} = \square$	$\frac{3}{10} + \frac{7}{10} = \square$	$8\frac{2}{7} + 3\frac{2}{7} = \square$	_____	_____	_____	+	+	+	_____	_____	_____	+	+	+	_____	_____	_____	$\frac{8}{8} + \frac{8}{8} = \square$	$3\frac{4}{9} + 5\frac{4}{9} = \square$	$2\frac{4}{10} + 6\frac{4}{10} = \square$	_____	_____	_____	+	+	+	_____	_____	_____
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### Steps for Coaching Activity Implementation:

1. The coach tutors on row 1 of problems using Coaching Question Sheet to guide the player and check the accuracy of the players's response on hte Coaching Question Sheet.



2. The player self-talks through each problem on row 2 while the coach provides corrective feedback.



3. Then, the pair exchanges roles and repeat the previous 2 steps on row 3 and 4 of problems.  
(‘Stop’ sign or ‘flag’ sign can be used in Coaching Sheet to alert students when to shift activities at the end of each row.



4. The coach score the problem the player solved through self talks.

(Kroeger & Kouche, 2006)

### Resources:

The Fuchs Research Group At Vanderbilt University (<https://frg.vkcsites.org/what-is-pals/>)